Methods for Managing Quality

Module 1

Mission, Responsibilities and Customers

Lesson 1	Assess the Mission
Lesson 2	Identify & Prioritize External Customers
Lesson 3	Identify Customers' Needs
Lesson 4	Identify & Prioritize Significant Processes
Lesson 5	Establish Output Measures for the Significant Process

Module 1, Viewgraph 1

☞ **INSTRUCTOR NOTE.** This module covers Steps 1 through 5 of the Process Management Flowchart. This module is presented in five lessons:

- **Lesson 1** - Teaches how to identify and validate the organization's mission.
- **Lesson 2** - Teaches how to identify and prioritize external customers.
- **Lesson 3** - Teaches how to identify customers' needs.
- **Lesson 4** - Teaches how to identify and prioritize significant processes.
- **Lesson 5** - Teaches how to establish output measures for significant processes.

This module introduces a Case Study to demonstrate steps an ESC takes to charter a QMB. The Case Study will illustrate how each step in the Process Management Flowchart is performed. Module 1 also introduces the Seven Management and Planning Tools, providing instruction in how to use them, both in generic applications and in process management. In this module we will have opportunities to practice three of the tools—the Affinity, Tree, and Matrix Diagrams.

Methods for Managing Quality

Module 1

Lesson 1

Assess the Mission

Learning Objectives:

- Explain the importance and use of a mission statement
- Describe how an ESC develops a mission statement

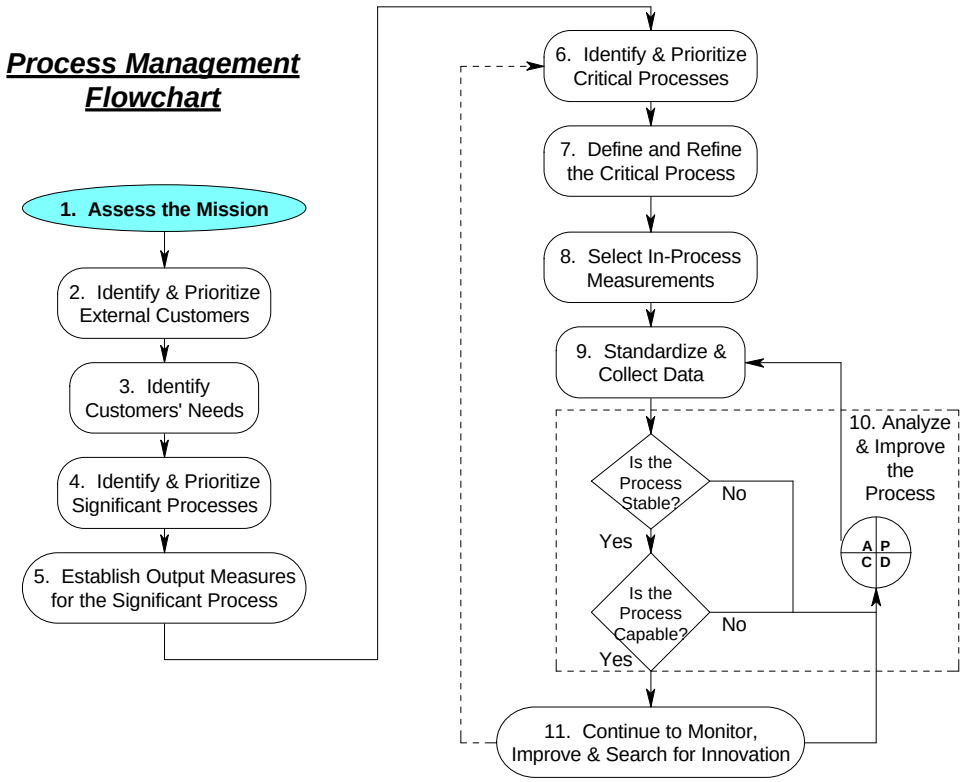
Module 1, Lesson 1, Viewgraph 1

LESSON OVERVIEW This step answers the question, “What is our organization’s role and purpose?”

Learning Objectives:

Upon completion of this lesson, participants will be able to:

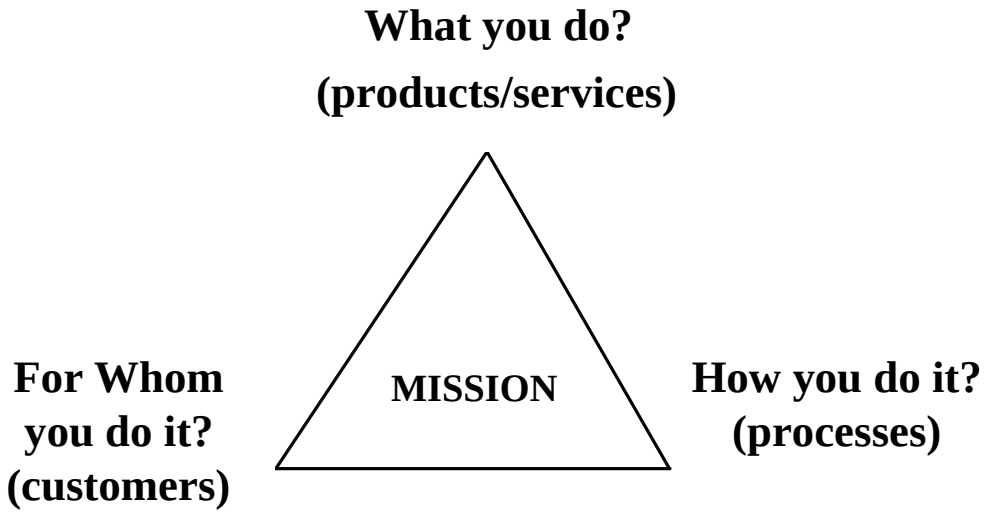
- Explain the importance and use of a mission statement
- Describe how an ESC develops a mission statement



Module 1, Lesson 1, Viewgraph 2

☞ **INSTRUCTOR NOTE.** Orient the participants by showing the Process Management Flowchart with Step 1 highlighted.

How to Develop Your Mission Statement



Module 1, Lesson 1, Viewgraph 3

What is a Mission Statement?

A mission statement identifies an organization's purpose. The mission statement delineates "**what** we do," "**for whom** we do it and "**how we do it**." A mission statement that captures an organization's reason for existence is essential for implementation of quality. It is the starting point for both Phase I Process Management activities and Phase II Strategic Management activities.

- The ESC reviews and validates the organization's mission as defined in existing documents and directives. The ESC will brainstorm external customers and products and/or services and by what method(s) the products and services are provided. This ensures that the mission statement accurately reflects the organization's current purpose and operating environment. Significant changes may have occurred since the organization's mission was established.

☞ **INSTRUCTOR NOTE.** Ask participants what types of changes might have occurred since their organizations' missions were established. Expected responses include changes in operational climate, technology, DON's mission, world politics, and organizational structure. Tie this discussion to the necessity for reviewing and validating the command's mission.

- If the organization's Immediate Superior in Command (ISIC) has developed a Strategic Plan, the ESC should ensure that the mission statement aligns with the ISIC's strategic goals and objectives.

- This step in the Process Management Flowchart is part of the Phase I activity "Define the Organization." As part of defining the organization, the ESC will depict the extended system for the command, identifying all organizations or groups of individuals that affect or are affected by their organization. This activity will provide the foundation for process management.

☞ **INSTRUCTOR NOTE.** More detailed information on viewing and depicting the organization as an extended system is provided in the Systems Approach to Process Improvement (SAPI) course.

- The mission statement will help the ESC identify significant processes around which to charter quality improvement teams. In this manner, all QMB/PAT efforts are linked directly to the organization's mission.

✉ **CASE STUDY NOTE.** The Case Study takes the class through the steps of process management and will be interwoven throughout the remainder of the course. Exercises involving the Case Study follow the lecture and discussion of key steps in the Process Management Flowchart so that participants immediately apply what they have learned in the lesson. The Case Study materials are provided in the back of the Instructor Guide. You will direct the participants to retrieve information on the Case Study at appropriate times during the course.

To begin using the Case Study:

- Ask the participants to retrieve the Case Study Background (CASE-1).

- Take 10-15 minutes to read the background material aloud and lead a discussion to ensure that there is a general understanding of the Case Study setting.

- Stress to the participants that process management takes place over time and it is important to maintain a record of what has been discussed and decided.

- Remind participants of the concept of a storyboard which is discussed in the *Team Skills and Concepts* course, and recommend that a storyboard be used to maintain the process management record.

- Begin a Storyboard by posting the Case Study Purpose Statement (CASE-2) and labeling it Step 1.

Product of Lesson 1

Module 1, Lesson 1, Viewgraph 4

LESSON SUMMARY: In Lesson 1, we learned that the mission statement defines the organization's role and purpose by identifying "what we do," "for whom we do it" and "how we do it." The mission statement serves as the starting point for deploying process management throughout the organization.

Methods for Managing Quality

Module 1

Lesson 2

Identify & Prioritize External Customers

Learning Objectives:

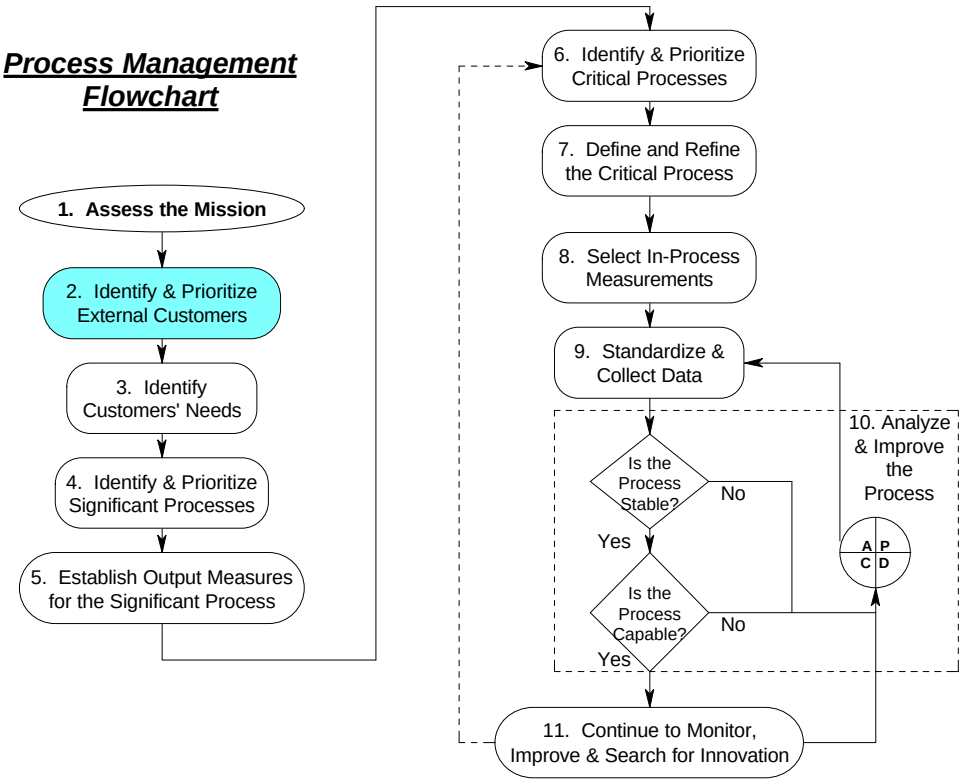
- ◆Explain the importance of identifying customers
- ◆Describe the concept of internal and external customers
- ◆Explain how to identify an organization's external customers
- ◆Describe methods for prioritizing customers

Module 1, Lesson 2, Viewgraph 1

LESSON OVERVIEW This step answers the question, "Who are our customers?"

Learning Objectives:

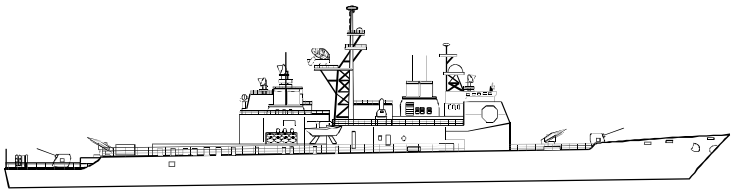
- Explain the importance of identifying customers
- Describe the concepts of internal and external customers
- Explain how to identify an organization's external customers
- Describe methods for prioritizing customers



Module 1, Lesson 2, Viewgraph 2

☞ **INSTRUCTOR NOTE.** Orient the participants in the Process Management Flowchart and tell them you will now transition to Step 2 - Identify and Prioritize External Customers.

Why Identify Customers?



You cannot determine the needs of customers
if you don't know who they are.

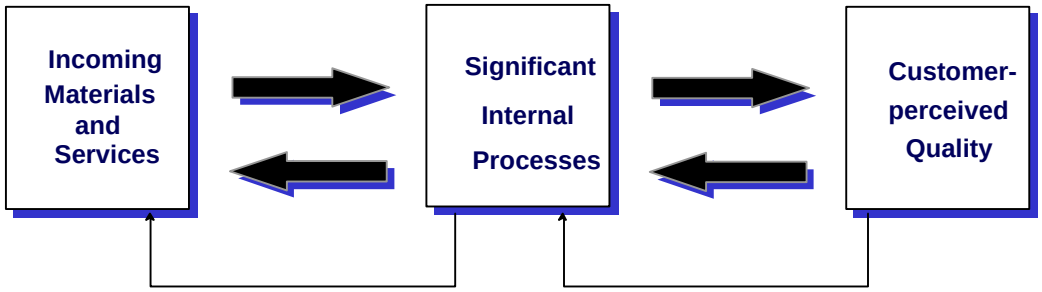
Module 1, Lesson 2, Viewgraph 3

The key to identifying and satisfying customers is to identify their requirements and attempt to satisfy those requirements. Thus, the answer to the question, "Why identify customers?" is that you can't determine the needs of the customers if you don't know who they are. Improving mission performance by meeting customers' present and future needs is the goal of TQL.

☞ **INSTRUCTOR NOTE.** Remind participants that they learned about the importance of customer focus in the *Fundamentals of TQL* course.

TQL is defined by the DON as "the application of quantitative methods and the knowledge of people to assess and improve: materials and services supplied to the organization, all significant processes within the organization, and meeting the needs of the end user, now and in the future."

A Total Quality Leadership Model

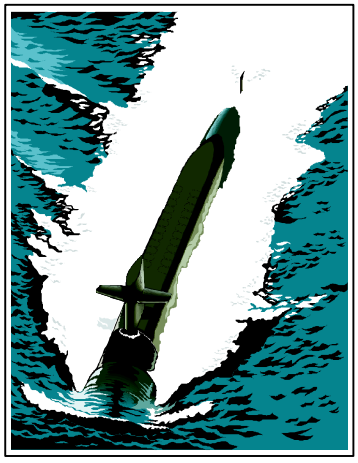


Module 1, Lesson 2, Viewgraph 4

This illustration points out the essential connections between a significant internal process and its external suppliers and customers. An understanding of this illustration can help in identifying customers.

☞ **INSTRUCTOR NOTE.** Make sure participants understand that this course is intended to focus primarily on the customer, not the supplier. The *SAPI* course provides more in-depth knowledge about the role of suppliers and other stakeholders.

- External Customer
  - The end-user or purchaser of your organization's product or service



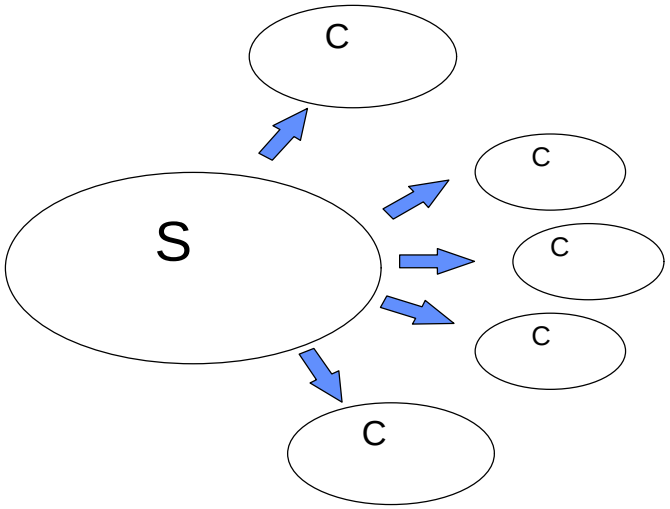
- Internal Customer
  - An individual or group within your organization who receives the output of one process as the input to theirs

Module 1, Lesson 2, Viewgraph 5

A customer is the person or group who establishes the requirements of a process and receives or uses the output of the process.

External Customer: An individual or group outside the boundaries of the producing organization who receives or uses the output of a process. External customers are the purchasers or users of your organization's products or services. They are the reason you are in business. The ESC focuses on the organization's external customers.

☞ **INSTRUCTOR NOTE.** Present these concepts graphically by drawing the following illustration.

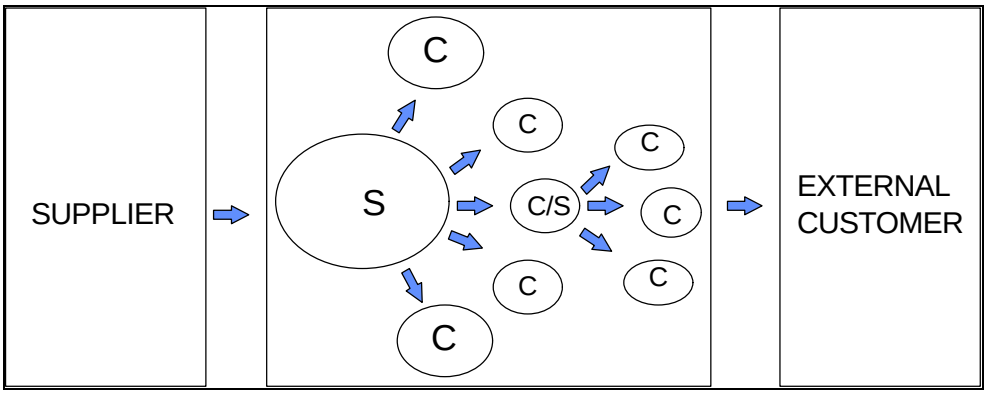


- Explain that the “S” represents the supplier and each “C,” a customer. Typically, the supplier provides a service or product to many different customers.

- Provide examples of this type of relationship, such as a utility company, a physician, a supply locker, or a public works maintenance office.

- Ask participants for additional examples to illustrate this type of customer-supplier relationship.

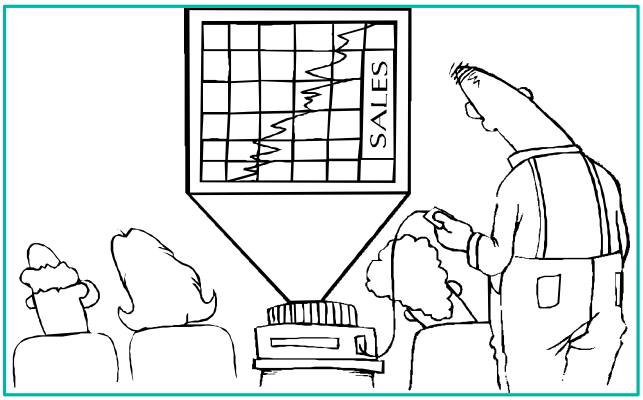
- Now draw the illustration below on a chartpack. Explain that one person performs a process and, in the supplier role, passes the product or service on to the next customer. This relationship continues as each person performs functions as both customer and supplier within the processes that provide products and/or services to the external customer. Emphasize that the participants, as functional managers, may very well be both customers and suppliers as the process crosses departmental boundaries.



An understanding of internal customer-supplier relationships is crucial to effective examination of a process’s cause system. This concept will be covered in greater detail later in the course.

How to Identify Customers

- ◆Review customer demands
- ◆Review data files
- ◆Brainstorm



Module 1, Lesson 2, Viewgraph 6

- **Review customer demands**

Consider incoming and outgoing correspondence, reports, and complaints.

- **Review data files**

Consider tasking documents, projects, and other data associated with the mission statement.

- **Brainstorm**

Brainstorm to create a list of external customers of the organization. This should be part of an ESC's depiction of their organization's extended system.

✉ **CASE STUDY NOTE.** Post the Case Study Customer List (CASE-3) on the Storyboard and label it Step 2.

How to Prioritize Customers

- ◆ Review business records
- ◆ Pareto analysis
- ◆ Productivity matrix
- ◆ Discuss and decide

Module 1, Lesson 2, Viewgraph 7

It is often unrealistic to expect to be able to talk to every external customer. The goal should be to **sample** those customers whose needs might be representative of those customers you can't contact.

- For many organizations, a simple review of business records to determine the highest volume customers will suffice.
- Pareto analysis of the amount of business or complaints from customers can guide prioritization.
- Detailed stakeholder analysis using productivity matrices is a powerful method.
- Ultimately, the tried and true "discuss and decide" method may be all that is necessary to determine which customer organizations to contact first. Discussion among subject matter experts coupled with decision-making based on well-established criteria can be very effective.

Product of Lesson 2

A prioritized list of your external customers

Module 1, Lesson 2, Viewgraph 8

LESSON SUMMARY. In this lesson you learned why it is important to identify your customers—to be able to determine their needs. You have learned your external customers are outside the boundaries of the producing organization and are the purchasers or users of your organization's products or services. Finally, you learned some ways to identify your external customers.

Methods for Managing Quality

Module 1

Lesson 3

Identify Customers' Needs

Learning Objectives:

- Describe the methods used to identify and document customers' needs
- Describe the purpose and use of the Customer Needs Form
- Recognize the Seven Management and Planning (7MP) Tools

(Continued)

Module 1, Lesson 3, Viewgraph 1

LESSON OVERVIEW. Lesson 3 introduces a method for finding out our customers' needs and allowing our customers to indicate the relative importance of those needs. Step 3 demonstrates the use of one of the 7MP Tools, the Affinity Diagram, to arrange our customers' needs into data which can be used at a later step in the Process Management Flowchart.

Learning Objectives:

Upon completion of this lesson, participants will be able to:

- Describe the methods used to identify and document customers' needs
- Describe the purpose and use of the Customer Needs Form
- Recognize the Seven Management and Planning (7MP) Tools

Identify Customers' Needs

Learning Objectives:

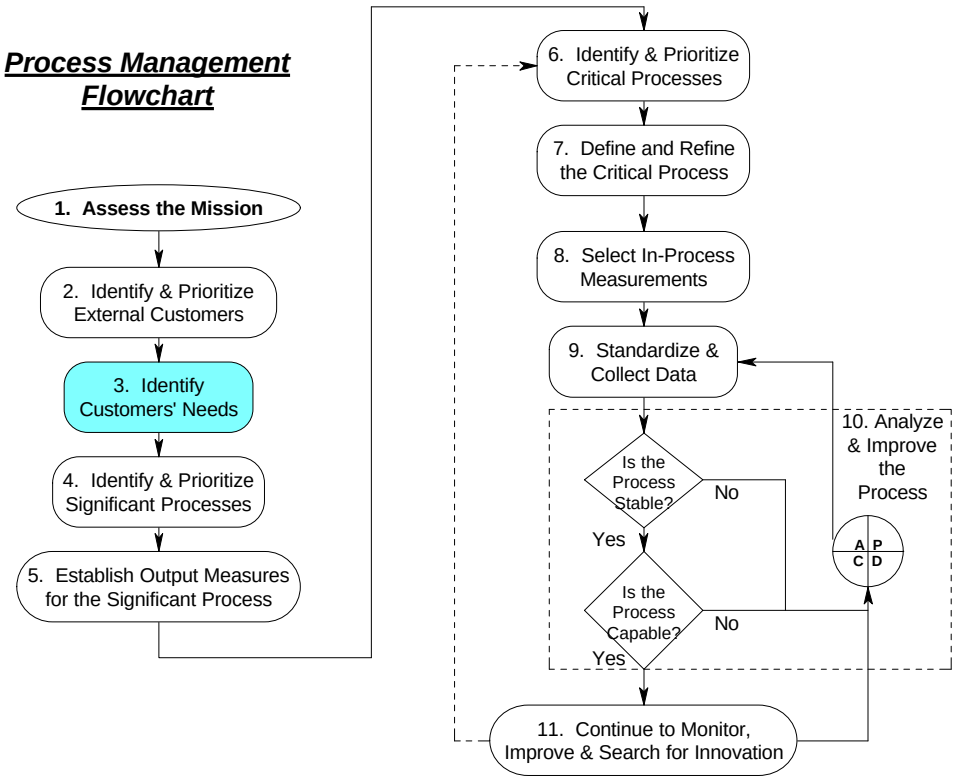
- Describe the purpose and use of an Affinity Diagram
- Describe how to use an Affinity Diagram to organize customer's needs
- Construct an Affinity Diagram to organize customers' needs

Module 1, Lesson 3, Viewgraph 2

Learning Objectives:

Upon completion of this lesson, participants will be able to:

- Describe the purpose and use of an Affinity Diagram
- Describe how to use an Affinity Diagram to organize customers' needs
- Construct an Affinity Diagram to organize customers' needs



Module 1, Lesson 3, Viewgraph 3

☞ **INSTRUCTOR NOTE.** Use the Process Management Flowchart to transition to Step 3.

Why Is It Important To Identify Customers' Needs?

Customer needs may be overcome by the needs of the organization. When these needs conflict, the organization usually "wins" at the expense of the customer.

Module 1, Lesson 3, Viewgraph 4

☞ **INSTRUCTOR NOTE.** Ask participants to recall from their own experience what happened when organizational needs conflicted with a customer's needs. Emphasize that the importance of performing this step is to be sure that organizational needs mesh with customer needs. If they don't, the needs of the organization can overcome the needs of the customer, because organizational needs are usually more easily recognized and may seem more pressing. As customers are being asked their needs, they should be allowed to express them in their own words.

Some examples of customer needs being overcome by organizational needs are:

- Late in the workday, an employee is rushing to provide a response to a customer before quitting time. The employee's supervisor needs information for a meeting right away. The employee switches tasks, providing the supervisor with the information requested. The customer will have to wait until morning.

- You are meeting with a customer to go over arrangements for a project. You suddenly realize you have a meeting with the Commanding Officer in five minutes. You excuse yourself, saying you are late for another meeting. You quickly schedule a later meeting with the customer to complete the arrangements for the project. The customer will have to wait.

In each example, the customer's need takes second place to the organization's need.

To Determine Your Customers' Needs You Must Ask Them What They Are

- ◆ Review existing documents
- ◆ Meet with individual customers
- ◆ Facilitate group meetings
- ◆ Conduct telephone interviews
- ◆ Observe customers using your product or service
- ◆ Survey customers

Module 1, Lesson 3, Viewgraph 5

☞ **INSTRUCTOR NOTE.** Stress the importance of going to the customers and having them identify their needs. This is a significant change from the status quo. Going to the customer is a new way of doing business.

The ideal way to get customers' input is to meet and talk with each of them individually. Since that is not always possible, you may have to employ some of the other methods listed in the viewgraph.

- **Review existing documents**

By reviewing documents that indicate previous customer demands, you can gather data and prepare for talks directly with customers.

- **Meet with individual customers**

When meeting with individual customers to ask them what their needs are, record their comments verbatim. Have customers operationally define these needs.

- **Facilitate group meetings**

Meeting with customers in a group setting can reduce the amount of time invested in getting customer input. Use a telephone call, a memorandum, or a letter to invite a group of five to ten customers to meet with your team in a single session. State the time and length of the meeting, their role, and your expectations. Tell them the purpose of the meeting, and inform them that their input will be used collectively with that of all your customers to form the foundation of your improvement efforts.

- **Conduct telephone interviews**

You can interview customers about their needs on the telephone. Provide them with the same sort of information you would give them if you met with them in person. Record their comments in their own words.

- **Observe customers using your product or service**

It can be an eye-opening experience to observe customers using your product or service.

- **Survey customers**

The customers surveyed should be receiving the same types of products and/or services so that they form a homogeneous group. If there are a great many customers in the group, we may need to obtain a representative sample. We can then use the Customer Needs Form to obtain customer input.

Customer Needs Form

Customer: **Interviewed by:** **Date:**

1. CUSTOMER NEEDS	2. IMPORTANCE	3. PERFORMANCE	4. CONCERNS
	1 2 3 4 5	1 2 3 4 5	
	1 2 3 4 5	1 2 3 4 5	
	1 2 3 4 5	1 2 3 4 5	
	1 2 3 4 5	1 2 3 4 5	
	1 2 3 4 5	1 2 3 4 5	
	1 2 3 4 5	1 2 3 4 5	
	1 2 3 4 5	1 2 3 4 5	
	1 2 3 4 5	1 2 3 4 5	
	1 2 3 4 5	1 2 3 4 5	

IMPORTANCE RATING GUIDE FOR CUSTOMER NEEDS

1	2	3	4	5
Lowest				Highest

PERFORMANCE

1	2	3	4	5
Poor performance, very dissatisfied	Inconsistent or somewhat inadequate performance	Adequate performance; meets minimum req's	Very good performance; customer is very satisfied	Best in class; sets new standards for performance

Module 1, Lesson 3, Viewgraph 6

☞ **INSTRUCTOR NOTE.** The Customer Needs Form was prepared to assist in getting customer input. It is just ONE way to determine customers' needs. A copy of the form is included in the Case Study (CASE-4). Instructions for using it are on the back of the form.

Using the Customer Needs Form with customers. Ask each customer to complete a Customer Needs Form. Briefly explain each block of the form. The following information addresses some of the "soft" issues that are important.

BLOCK 1 - CUSTOMER NEEDS.

- Let the customer define "need."
- Be in a listening mode and just accept the information the customer provides without steering or censoring the input. Use the customer's language verbatim.
- The most valuable input will be the customer's identification of areas needing improvement. This is exactly the information you are trying to get.
- The customers' level of satisfaction can only be discovered by asking what their needs are. Establishing the customers' ranking of products or services does not reveal their current level of satisfaction. This distinction is extremely important

because it forms the basis for efforts to improve operations by increasing customer satisfaction.

BLOCK 2 - IMPORTANCE. Have customers rate, identify, and circle their top five choices (5=highest; 1=lowest). **Retain data on other needs.**

BLOCK 3 - PERFORMANCE. This information will be used as a baseline measurement when you select a process to improve. You can use this baseline measurement later to gauge whether customers believe improvement was made from their perspective.

BLOCK 4 - CONCERNS. Have customers list concerns associated with each need.

☞ **INSTRUCTOR NOTE.** Remind the class that quality begins with meeting the customers' needs and extends to delighting them—giving them more than they imagined possible. This means we must learn how to listen to the customers and help them identify and articulate their needs and lead them into the future. An example to illustrate this point is Peter Scholtes' anecdote about Konica. Customers were very satisfied with the cameras Konica put out. However, Konica was determined to improve, so they had customers come in with pictures they had taken. They asked the customers what happened to cause some of their pictures to be blurry, too dark, too light, or whatever. In every instance, the customer said, “It wasn't your camera's fault; it worked great. I just set the wrong F-stop, or ASA, or forgot to advance the film, but it had nothing to do with your camera!" Konica took this information and developed an automatic camera, something the customer could not even express as a need. Concerns customers express on the Customer Needs Form provide insight into needs they cannot articulate. It is extremely important you start your analysis with good accounts data. Spending time analyzing and discussing “bad” data, regardless of the number of tools and meetings involved, may be unproductive and inefficient.

EXERCISE. This exercise is designed to overcome the awkwardness participants may experience because sitting down with customers and asking for their input is new. To prepare participants to perform this step, the instructors will **role play** a typical encounter using the Customer Needs Form.

- Prior to class, list the following role play settings on a chartpack:

⇒ Airline reservations clerk (supplier) and traveler needing reservations (customer)

⇒ Tool room attendant (supplier) and production worker who uses tools (customer)

⇒ Navy hospital pharmacist (supplier) and patient (customer)

⇒ Naval Supply Center Customer Service Rep (supplier) and Coast Guard Requisition Officer (customer)

- Provide clear directions for the participants' role play:

⇒ Form into team

⇒ Select one role play setting per team from those listed on the chartpack

⇒ Select a partner from within your team and take turns role playing and getting feedback from the others in the group.

⇒ Record feedback on the Customer Needs Form provided.

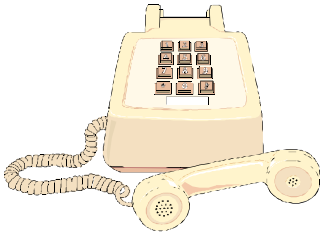
- Distribute copies of the blank Customer Needs Form (CASE-4).

- Move around the room to provide assistance and feedback.

- Remind participants to probe when clarification is required, and to feed back the customer's response to the customer to be sure a clear understanding of needs is obtained.

If a large amount of data has been collected from customers, a tool is needed to help organize the data.

Every Job Requires the Correct Tools



Module 1, Lesson 3, Viewgraph 7

As you learned in the *Fundamentals of TQL* course, there are many different tools you can use to manage and improve processes. You can use the tools to obtain or display different types of information or analyze data. Sometimes the output from one tool becomes the input to another tool.

If you understand the purpose of each tool and how to use it, you will be able to select the right tool to help you collect and interpret data and make sound, data-based decisions.

☞ **INSTRUCTOR NOTE.** You will introduce the Seven Management and Planning Tools in this lesson, beginning with instruction in how to use them as you follow the Process Management Flowchart. Emphasize that a large part of process management is the PLAN step of the PDCA cycle and point this out on the posted, oversized Process Management Flowchart.

Tools and Their Uses

Basic Graphic Tools

Management & Planning

Module 1, Lesson 3, Viewgraph 8

Basic graphic tools are used for gathering, displaying, and analyzing data from a given population. These tools should be used when the nature of a problem calls for the collection or displaying of numerical data and problem solving information.

- **Some uses for basic graphic tools:**

    - Illustrating process output
    - Showing trends
    - Comparing data
    - Analyzing cause and effect
    - Defining the process
    - Collecting data
    - Predicting process performance

When problems cannot be solved by just using quantitative tools to analyze data, the Seven Management and Planning Tools (7MP Tools) can fill this need.

- **Some uses for the 7MP Tools:**

    - Arranging language data
    - Seeking creative ideas
    - Enriching plans
    - Identifying relationships

- Obtaining cooperation
- Establishing priority
- Building quality into management decisions
- Producing better designs (meeting or exceeding customer needs) in less time with less rework required
- Complementing existing data collection, analysis, and control tools, particularly during the PLAN phase of the PDCA cycle
- Promoting greater involvement of top management, planners, and support staff in TQL throughout the organization
- Giving planners a set of integrated planning tools that are easy to use and result in more comprehensive and easier to execute plans
- Providing a systematic way of developing effective contingency plans
- Being able to cope more effectively with unexpected events or changing conditions
- Helping managers organize, process, and display complex and diverse verbal information

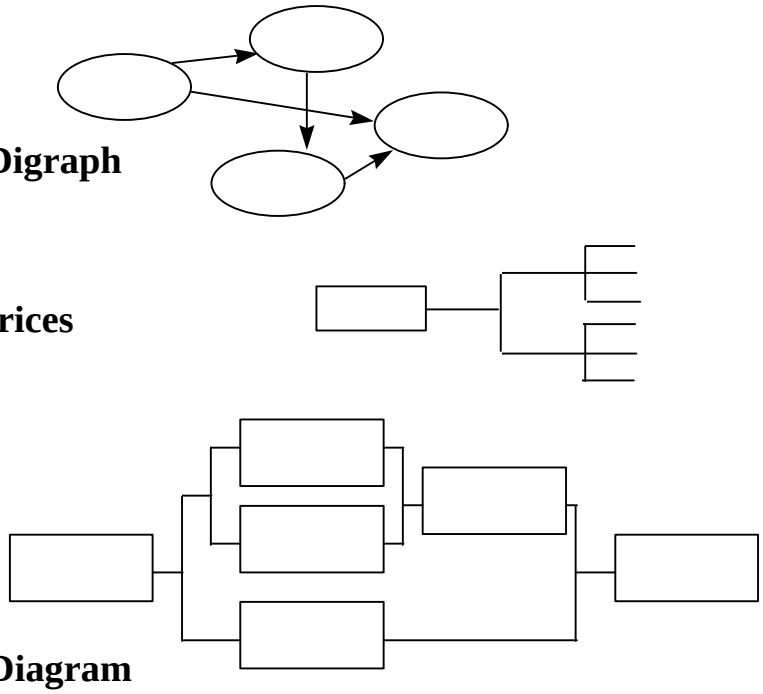
The 7MP Tools are to ideas and concepts as the basic graphic tools are to process data and output. The 7MP Tools have proven useful to managers at all levels. These tools actually help to make the job of Process Management easier and more understandable. The 7MP Tools are most powerful when combined and used in sequence to solve problems and to manage processes. However, many people have used them independently with great success.

Remember, these tools should not make decisions for you; they should help in the decision process. It is always important to analyze the information the tools generate.

☞ **INSTRUCTOR NOTE.** Ask students to retrieve their copies of *The Memory Jogger Plus+* from the student kits. Explain that they will have occasion during the course to refer to the cards contained in the pocket in the back cover of the book.

The Seven Management & Planning Tools

1. **Affinity Diagram**
2. **Interrelationship Digraph**
3. **Tree Diagram**
4. **Prioritization Matrices**
5. **Matrix Diagram**
6. **Process Decision Program Chart (PDPC)**
7. **Activity Network Diagram**



Module 1, Lesson 3, Viewgraph 9

The Seven Management and Planning Tools are primarily used in the planning phase of the PDCA cycle because they are excellent tools to help us organize thoughts and ideas. Between 1972 and 1979 the Society for QC Technique Development refined and tested these tools individually and together in an overall planning cycle. The tools are given different names by various authors: e.g., Michael Brassard in *The Memory Jogger Plus+,* Shigeru Mizuno in *Management for Quality Improvement: The 7 New QC Tools,* and Myron Tribus in *A Model for Planning.* This course will refer to the tools as described in *The Memory Jogger Plus+,* a course handout.

In this course, we will only be using five of the tools shown and the tools will be presented in a different order than in Viewgraph 9. There is no fixed sequence for the application of these tools.

- **Some examples of applications for the 7MP Tools are:**

    - Development of tactics
    - Quality assurance on aircraft repairs
    - Quality improvement, planning, and development
    - Analysis of ship overhaul or repair processes
    - Safety controls (tag-out)
    - Weapons test evaluation
    - Management and improvement of base facilities
    - Quality Design
    - Education and training
    - Recruiting and personnel assignment
    - Financial matters and accounting
    - Repair parts procurement and distribution

The first MP tool you will learn about is the Affinity Diagram.

Affinity Diagram

- A tool for collecting and organizing language data into logical groupings
- Can be used in process management to organize customer needs data

Module 1, Lesson 3, Viewgraph 10

Most people and teams can easily generate large sets of data in the form of ideas, suggestions, options, needs, complaints, and so on. The hard part is organizing the data to make them useful.

An Affinity Diagram groups language items based on natural relationships or "affinities." The groupings help the team see meaningful patterns—often resulting in new ways of looking at the issue or area of study.

- **The Affinity Diagram can be used to:**
  - Group ideas for improving a process
  - Identify related sets of customer quality characteristics
  - Organize customer needs

How to Develop an Affinity Diagram

- State the topic
- Collect the data
- Display data on cards
- Sort the cards
- Label header cards
- Complete the diagram

Module 1, Lesson 3, Viewgraph 11

- **State the topic**

The topic to be considered may be stated in the form of a broad question, phrase, or statement. Vague terms usually help keep the input "wide open"—which is what you want in order to get new, innovative ideas or ways of looking at the topic. For example, "What do our customers need?" will probably result in more new ideas than "Do our customers need X or Y?" The "X or Y" question locks you into only 2 options.

- **Collect the data**

Depending on the topic, data can be gathered by several methods, including surveys and direct observation. The most common method used is probably brainstorming, a group idea-generating method. The topic is written on a board or chart-pack so that everyone can see it. Members' ideas (solutions, suggestions, etc.) are posted as they are stated. Following these traditional rules helps promote synergy:

- No criticism of ideas
- Emphasis on generating a large number of ideas in a short time
- Encouragement of participation by every team member
- Ideas recorded on cards exactly as spoken, not as interpreted by the recorder
- "Piggybacking" on each others' ideas

- **Display the data on cards**

The data need to be displayed on individual cards so they can be moved around easily. Some teams record them on “Post-it” type notes as they brainstorm. Others transfer them to notecards or Post-its after the brainstorming session.

In either case, you should record each idea on a separate note/card and display them on a board or table so several people can gather around at one time to work on them.

- **Sort the cards—Team members physically sort the cards into groupings. Several people work at the same time, but act independently. Follow these steps and guidelines:**

  - **Initial sort**

    Start by reading each card carefully for understanding. Briefly clarify—but don’t discuss—any items that are not understood. Then select two cards that are alike in some way. Set them aside. Select other cards that seem to have some affinity for them. Start new groups when you see other patterns of likeness. Don’t try to categorize according to some known criteria. Just go by a feeling for which ones go together.

    Continue comparing and grouping, building sets of “like” items. Keep going until all of the cards are placed—there will usually be about 6 to10 groupings. Occasionally there will be a one-of-a-kind that stands alone. Resist the temptation to force-fit it into one of the groups.

  - **Iterative sorting**

    Continue sorting until each member is satisfied with the arrangement. If the team is so large that everyone can’t participate at once, you may need to divide the group into subsets that take turns sorting until no more cards are moved.

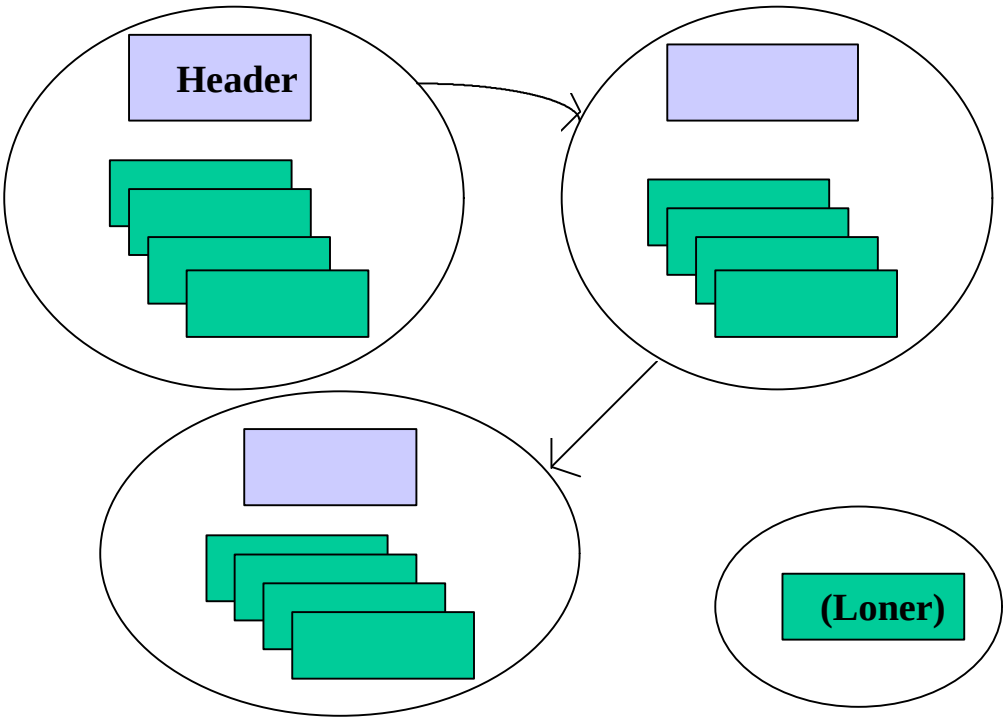
  - **No talking.** To allow people maximum freedom to express the relationships they see in the data, do not allow participants to discuss or otherwise consult each other as they sort. This is an unconventional, but powerful, way of working together. It helps people focus less on linguistics and more on meanings and patterns in the words.

  - **First responses.** Members should go with their first instincts when sorting. If they study the words too long they may lose the advantage of intuitive reaction, which is often important for “out of the box” thinking.

  - **Conflict.** When members see the patterns differently, cards may shift back and forth like Ping-Pong balls. This kind of disagreement is okay—it means there is more than one way to look at the issue. And diversity of views offers the best opportunity for real innovation and learning. Resolve the conflict by discussing the issue until members agree or by putting the card in question in both places

for further analysis and consideration.

Create Headers & Draw the Diagram



Module 1, Lesson 3, Viewgraph 12

- **Create header cards**

Identify a few words or a phrase that expresses the essence of a grouping. Write the expression on a card (using a different color marker helps header cards "stand out") and place on top of that grouping. Sometimes a single card within the group is representative and becomes the header.

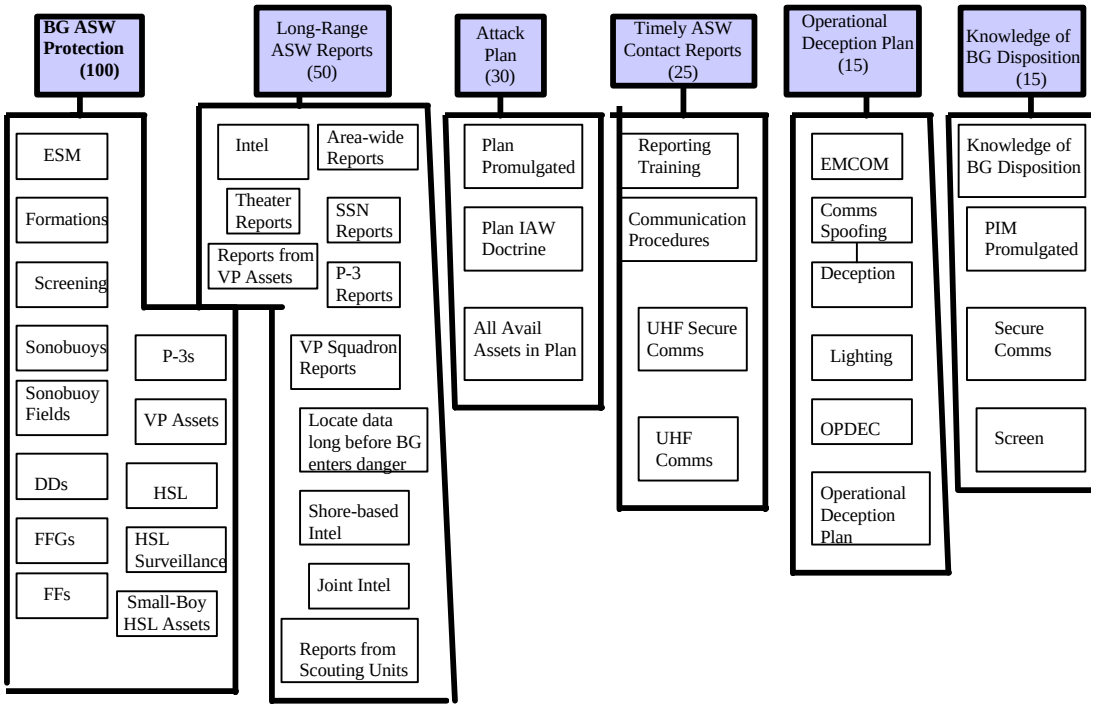
The header should be clear, brief, and meaningful. In search of the ideal header, some teams get hung up on this step by trying to create a header that fully describes every item in the grouping. Just look for a statement that captures the uniqueness of that grouping without going beyond the items included in the grouping.

- **Draw the finished diagram.**

The final step in the affinity process is to draw boxes or circles around each grouping to show boundaries of similarity. Groupings may be arranged in columns, rows, pods, or any other layout that facilitates understanding or helps draw a picture of the issue, process, or area of study.

Sometimes it helps to “group the groupings” according to relationships or similarities. Some teams even draw arrows to show connections between groupings or to indicate sequence as in a flow chart.

Completed Affinity Diagram Example



Module 1, Lesson 3, Viewgraph 13

This is an example of a completed affinity diagram for the antisubmarine warfare (ASW) needs of an aircraft carrier battle group. The terms shown here may not be familiar unless you have worked with ASW. Don't worry about what the acronyms and technical terms mean. *The purpose of this diagram is simply to show what a "real" affinity diagram might look like.*

These data were obtained by a survey using the "Customer Needs Form" used earlier in this lesson. The needs identified by the customers were grouped by the ESC according to how they seemed to be alike. Then the headers were prepared and priority data from the Customer Needs Form were transferred to the header cards.

☞ **INSTRUCTOR NOTE** Don't let participants get hung up on the content of this diagram—you aren't teaching ASW! The header card terms will carry through to other examples later on in the course, so it is important to make this point clear early on in the class.

Using the Affinity Diagram to Organize Customer Needs

- Transfer data from customer needs forms to cards. Include priority ratings
- Combine EXACT duplicates onto a single card. Include priority ratings

(Continued)

Module 1, Lesson 3, Viewgraph 14

Use an Affinity Diagram to organize customers' needs when the list of needs is too large to manage. If less than 15 customer needs have been identified, you probably don't need to use the Affinity Diagram. In that case, the customers' needs identified on the Customer Needs Forms will be used as the input to the Matrix Diagram in Step 4.

☞ **INSTRUCTOR NOTE.** Note that in this case the data for the affinity was obtained by customer survey interviews rather than by brainstorming.

- **Transfer customer needs from needs forms to cards**

Include priority ratings that you captured on the Customer Needs Form.

- **Combine exact duplicates onto a single card**

Include a total of all exact duplicate priority ratings on the single card. Combine only exact duplicates, not similar needs. Allow the Affinity Diagram to group similar needs.

Using the Affinity Diagram to Organize Customer Needs

- Group the cards
- Create a header for each grouping
- Total the priority ratings for all cards in a grouping onto the header card

Module 1, Lesson 3, Viewgraph 15

- **Group the cards**

Group ideas by their relationship to a product or service.

- **Create a header for each grouping**

The title or phrase should reflect a common theme within the group of items.

- **Total the priority ratings for all cards in a grouping onto a header card**

Total the priority ratings from all cards placed beneath the header card. Be sure to include the priority rating from the header card if this card was selected from the pool of cards. Record the total on the header card.

EXERCISE. Apply the Affinity Diagram to process management by using the Case Study data.

- Instruct participants that their teams will now construct an Affinity Diagram.

- Ask them to retrieve their copies of the Case Study Customer List (CASE-3), the Case Study Customer Needs Form (CASE-5), and the Case Study Customer Needs List (CASE-6).

- Distribute one set of Case Study Affinity cards (CASE-7) to each team. Point out that:

⇒ Each card contains a customer need (or duplicate need) with its priority rating(s) obtained from the Case Study Customer Needs Forms.

⇒ Duplicate needs have already been combined by stacking cards with duplicate needs
(the same need identified by more than one customer) and recording each card's priority rating on the top card.

- Direct the teams to:

⇒ Spread the cards randomly on a flat surface

⇒ Move the cards into related groupings at will, without talking, until consensus is achieved.

⇒ Create a header card for each grouping that captures the essence of that customer needs grouping.

- Stress the importance of the header card capturing the main theme of its grouping, and not force-fitting loners.

- Remind participants that the Affinity Diagram should be changed until consensus is achieved.

- Circulate and provide assistance as required. Use the completed Case Study Affinity (CASE-8) to illustrate how the priority rating is determined.

✉ **CASE STUDY NOTE.** Explain to the participants that you expect each of the teams' Affinity Diagrams will be different from the Case Study, but for consistency through the rest of the course, you will use the completed Case Study Affinity Diagram. Place the completed Case Study Affinity (CASE-8), with header cards highlighted, on the Storyboard beside the Customer Needs (CASE-5) Step 3.

Product of Lesson 3

Module 1, Lesson 3, Viewgraph 16

LESSON SUMMARY. In this lesson you learned to identify customer needs using the Customer Needs Form, and to group those needs using an Affinity Diagram. These needs groupings will be used in the next lesson to prioritize the organization's significant processes, ensuring that we focus first on improving processes that most contribute to the satisfaction of external customers' needs.

Methods for Managing Quality

Module 1

Lesson 4

Identify & Prioritize Significant Processes

- Learning Objectives:
  - Explain the importance of identifying and prioritizing an organization's significant processes
  - Describe the purpose and construction of a Tree Diagram
  - Construct a Tree Diagram to identify an organization's significant processes

(Continued)

Module 1, Lesson 4, Viewgraph 1

LESSON OVERVIEW. Lesson 4 introduces two more of the Seven Management and Planning Tools and demonstrates the use of these tools in combination. These tools will help identify the significant processes that produce your products and/or services, and to focus improvement efforts by prioritizing those significant processes.

Learning Objectives:

- Explain the importance of identifying and prioritizing an organization's significant processes
- Describe the purpose and construction of a Tree Diagram
- Construct a Tree Diagram to identify an organization's significant processes

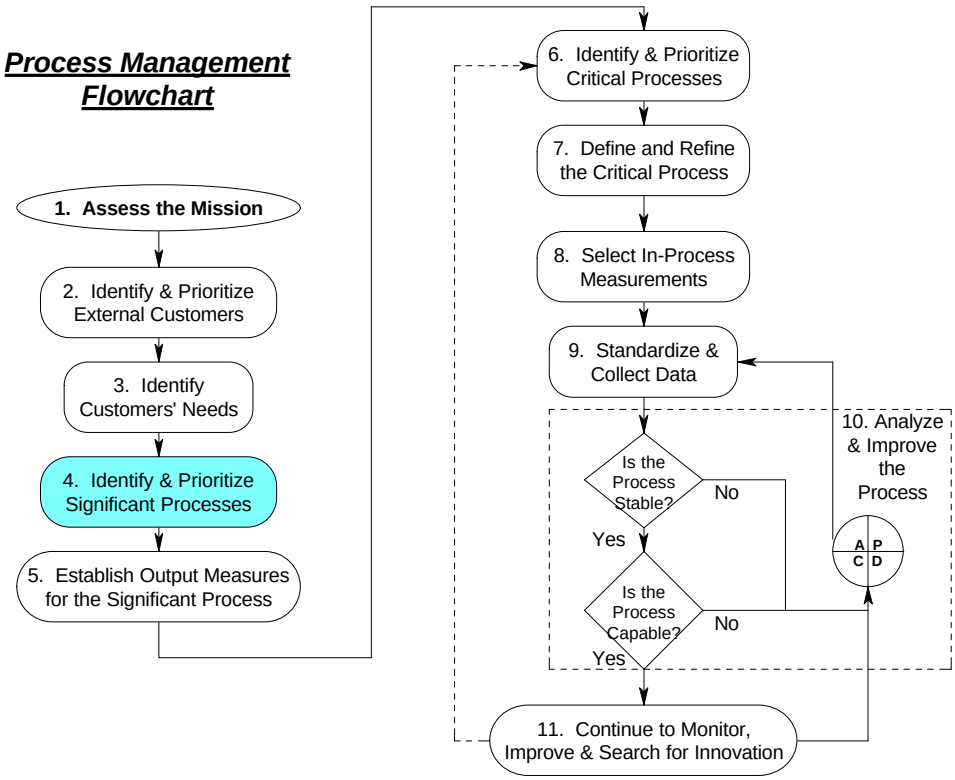
Identify & Prioritize Significant Processes

- Learning Objectives:
  - Explain the importance of aligning significant processes with customer needs
  - Describe the purpose and construction of a Matrix Diagram
  - Construct a Matrix Diagram to develop a prioritized list of an organization's significant processes

Module 1, Lesson 4, Viewgraph 2

Learning Objectives:

- Explain the importance of aligning significant processes with customer needs
- Describe the purpose and construction of a Matrix Diagram
- Construct a Matrix Diagram to develop a prioritized list of an organization's significant processes



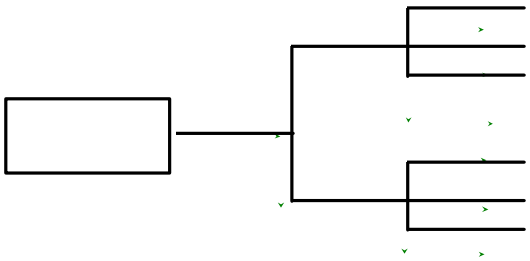
Module 1, Lesson 4, Viewgraph 3

☞ **INSTRUCTOR NOTE.** Orient the participants in the Process Management Flowchart and tell them you will now transition to Step 4 - Identify and Prioritize Significant Processes.

To Identify Significant Processes...

◆ Expand from the mission using an MP tool:

The TREE DIAGRAM

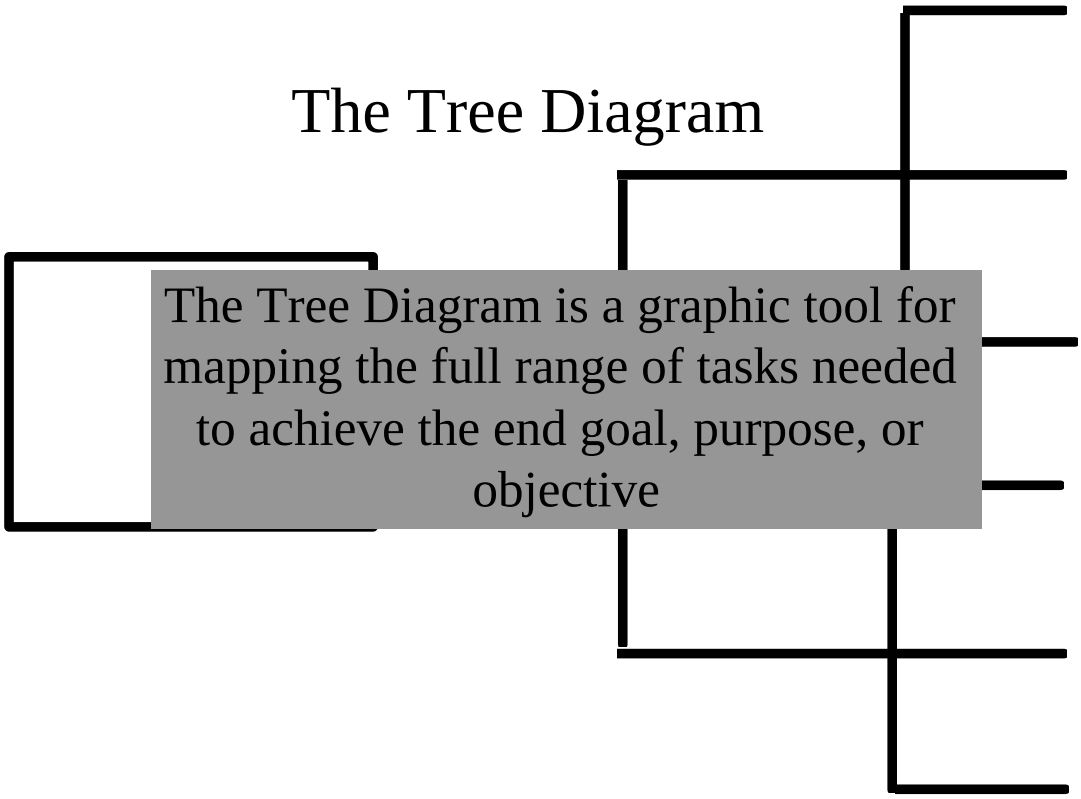


Module 1, Lesson 4, Viewgraph 4

Using the product of Lesson 1—the mission statement—and the guidance provided by the Case Study, we will use one of the 7MP Tools called the "Tree Diagram" to identify the organization's major products and/or services and the processes that produce them.

The Tree Diagram is a graphic tool used to help determine the specific sequence of events required to achieve a primary objective or to solve a problem.

- **Tree Diagrams are used when:**
  - ♦ Broad objectives must be broken down into finer detail.
  - ♦ All of the requirements must be identified.
  - ♦ Assignable tasks must be created.



Module 1, Lesson 4, Viewgraph 5

The Tree Diagram translates the general into specifics. It maps out in increasing detail the full range of tasks that need to be accomplished to achieve a primary goal and related sub-goals.

- **This tool works best when used to:**
  - ♦ Identify specific actions required to solve a problem
  - ♦ Identify all the levels of means and ends which, in aggregate, will achieve a goal
  - ♦ Translate ill-defined needs into operational characteristics

How to Develop a Tree Diagram

- State the end goal (purpose/objective)
- Identify the major headings
- Draw the branches for each major heading
- Logic check the completed diagram

Module 1, Lesson 4, Viewgraph 6

- **State the end goal (purpose or objective)**

A Tree Diagram begins with the end—the broad goal or objective you're working on or studying. When something has to get done, it's complex, it requires thoroughness and has multiple action paths, "tree it out" from its broadest form to its most detailed elements. The goal statement should be placed at the extreme left of the diagram.

- **Identify the major headings**

This first level of the Tree Diagram should give you the major steps, events, or actions that must occur to reach the end goal. Ask yourself what big pieces are both necessary and sufficient to achieve the main purpose or objective.

- **Draw the branches for each major heading**

Repeat the process and the question for each branch of the Tree—one level at a time. Create new cards for each level of detail, extending out to the right of the goal statement as you go.

- **Logic check the completed diagram**

Once the diagram is completed, step back and take a fresh look at the picture you have created of the topic you have “treed out.” Does it make sense? Reading from right to left, does it tell the story from specific to general, from cause to effect? At each level of detail, is each branch necessary and sufficient to cause the next-higher level event to occur?

Reading the diagram from left to right, does each succeeding level of detail fully define the steps required to achieve the goal? Are there any unnecessary steps? Don’t be afraid to make changes that your logic tells you are needed. Many times the tree diagram is a starting point for other work, so it’s important to get it right before you move on.

☞ **INSTRUCTOR NOTE.** There is a choice of methods to use in constructing the Tree Diagram. You can write directly on a chartpack or a sheet of plain paper, or you can use cards or "stickies" and place them on the chart pack or paper. Because items and tasks often change positions, a preferred method to record ideas is to use "stickies" and then construct the tree using the "stickies," keeping the process fluid and flexible until consensus is achieved.(Each time you see the word "cards," note that it can be interchanged with the term "stickies.")

How to Construct a Tree Diagram for Process Management

- Draft the Mission Statement
- Identify significant processes (major headings)
- Identify critical processes (next level of branches under each major heading)
- Logic check the completed process management Tree Diagram

Module 1, Lesson 4, Viewgraph 7

We can use a Tree Diagram in Process Management to help us identify the major processes and supporting processes by which we accomplish the mission.

- **Draft the Mission Statement**

The command's mission is the end goal you plan to "tree out." Use the Mission Statement as your goal statement and paraphrase it if it is lengthy. Place your goal statement to the far left to begin your Tree Diagram.

If your command already has a mission statement, review it to make sure it is current and accurately reflects what the command does, who you do it for, and how you do it. Your focus here is on the action part of the mission—the processes by which you provide the products and services to your customers.

- **Identify significant processes (major headings)**

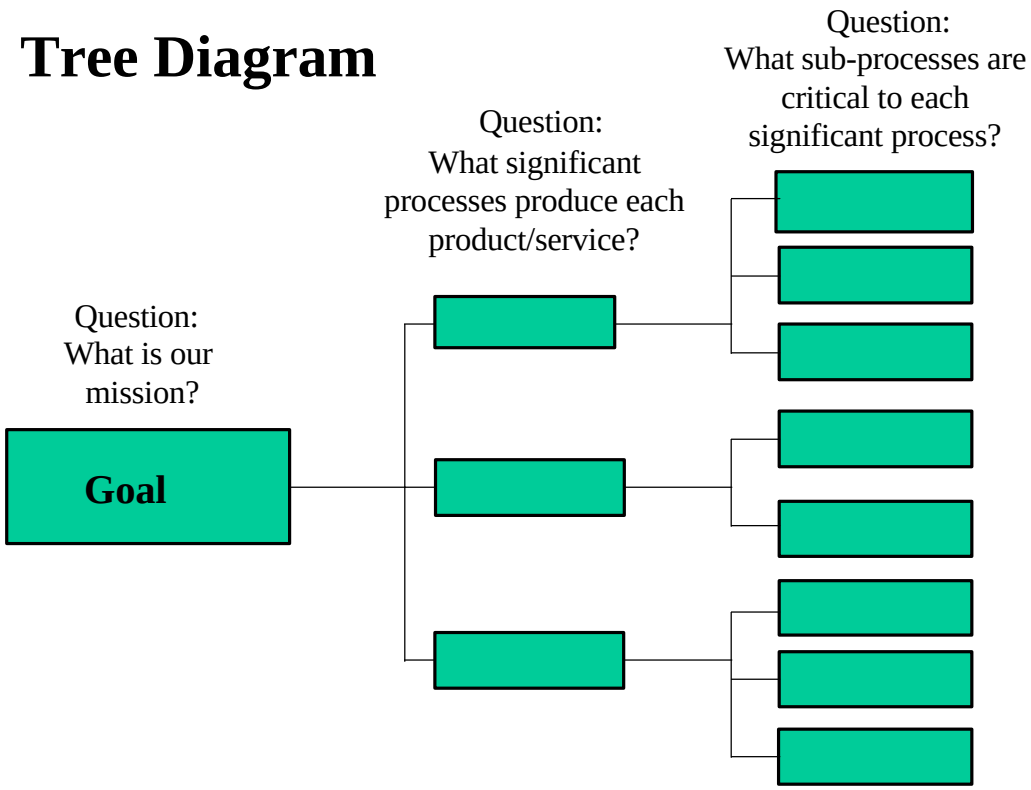
Complete one branch at a time. First ask, "What significant processes produce the major products and/or services identified in the mission statement?" The answers become the first level of the Tree Diagram.

Remember that your significant processes are those that cross functional areas within the organization and provide a product or service to an external customer. There should be only a few; if more than 3 to 5 are identified, you should logic-check by asking:

- ♦ Is it a process?
- ♦ Is it cross-functional?
- ♦ Does the output go to an external customer?

- **Identify critical processes (next level of branches under each major heading)**

Ask, "What sub-processes are critical to the accomplishment of each significant process?" The answers become the second level of the Tree Diagram. It is important to work left to right through the branches for each process before starting another.



Module 1, Lesson 4, Viewgraph 8

- **Logic check the completed process management Tree Diagram**

At this point check to make sure that the Tree Diagram correctly represents the mission statement as the goal, the significant processes as the first level, and critical processes at the second level. Would each critical process, if accurately performed, be necessary and sufficient to support the significant process? If each significant process were accurately performed, would you accomplish the mission? Is each significant process necessary to complete the mission?

EXERCISE.

- Review the Case Study Background posted on the Storyboard.
- Have participants retrieve their copies of the Case Study Mission Statement (CASE-2) and tell them this statement will become the GOAL for the Tree Diagram.
- Distribute to each team one set of the Case Study Tree Diagram cards (CASE-9) and point out that the top card is the Tree Diagram's GOAL.
- Explain this exercise using written directions you have prepared previously on a chart pack:

  ⇒ Review the cards and ask any questions you may have.

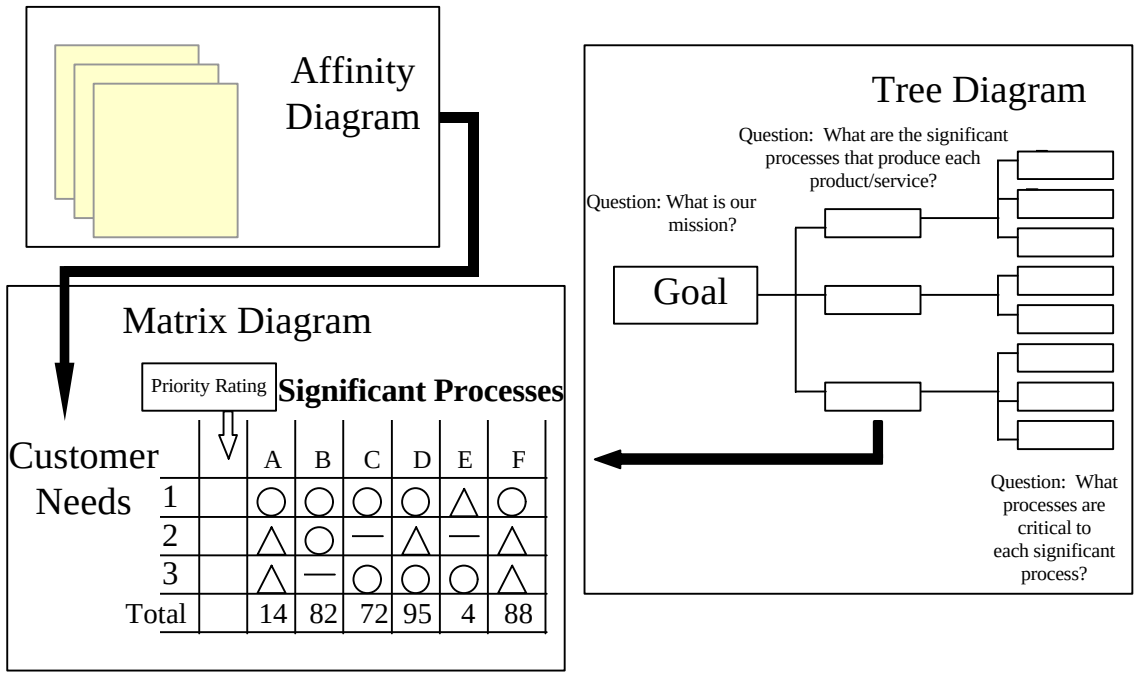
  ⇒ Construct a Tree Diagram using the cards.

  ⇒ Report out by teams.

- Observe the teams at work and provide assistance by giving suggestions, asking questions, or providing partial answers. Point out the pitfalls as they occur. Suggest what to look for, e.g., means-goal or cause-effect relationships, or linkage of steps.
- Remind the teams to do a bi-directional check on each branch of the tree.
- Have the participants retrieve and scan the completed Case Study Tree Diagram (CASE-10).

✉ **CASE STUDY NOTE.** Reassure the participants that it is okay for their diagrams to differ from the Case Study Tree Diagram. The outcomes are directly influenced by the perspectives, knowledge, and biases of the individuals involved. Highlight the second level of the Case Study Tree Diagram (CASE-10) and place it on the Storyboard labeled Step 4.

The Outputs of Two Tools Become Inputs to Another



Module 1, Lesson 4, Viewgraph 9

Next you need to identify the relationships between customer input (obtained from the header cards of the Affinity Diagram) and significant processes (from the first level of the Tree Diagram). We can use the Matrix Diagram, another of the 7MP Tools, to discover these relationships. You will see how the outputs of two tools become the inputs to another tool.

☞ **INSTRUCTOR NOTE.** Use the viewgraph to review the tools learned thus far and how each tool is used in process management. Keep this viewgraph close by and use it as an aid to transition from one tool to another.

Align Customers' Needs With Significant Processes

◆A Matrix Diagram is a tool that organizes large groups of items in a table of columns and rows to study relationships among the elements.

Module 1, Lesson 4, Viewgraph 10

Matrix Diagramming is a technique used to determine the presence and strength of a relationship between two or more sets of ideas, functions, characteristics or other variables.

- **A Matrix Diagram is sometimes used with a Tree Diagram to show:**
    - ♦ the relationship between tasks,
    - ♦ who performs the tasks, and
    - ♦ the type of responsibility involved.
- **A two-way Matrix Diagram indicates relationships at intersections that are created** by placing one set of items in horizontal rows and another set of items in vertical columns.
- **Symbols are used to indicate the strength of the relationship** between the intersecting items.

- **A Matrix Diagram enables you to look at the correlation between many items at one time** because it:

    - ♦ organizes many pieces of information into sets of items to be compared, and
    - ♦ shows the logical connecting point between any two or more items, indicating which items in each set are related.

- **A Matrix Diagram can be used to:**

    - ♦ show the relationship between action steps and people,
    - ♦ establish strategies for matching products to markets,
    - ♦ clarify the technical relationships among improvement projects,
    - ♦ establish priorities among goals, objectives, or actions to achieve them,
    - ♦ match customer requirements to process improvement goals and actions,
    - ♦ align customer needs with organizational goals,
    - ♦ explore the application potential of new technology, and
    - ♦ arrange resources in priority order.

How to Develop a Matrix Diagram

- ◆ Generate the sets of items
- ◆ Choose the matrix format
- ◆ Enter items in the matrix
- ◆ Define relationship symbols
- ◆ Compare the sets of items
- ◆ Complete the Matrix Diagram

Module 1, Lesson 4, Viewgraph 11

The process of constructing the Matrix Diagram is straightforward. The steps are described as follows:

- **Generate the sets of items**

How you select the items to compare in a matrix depends on the question you are trying to answer, the type of matrix you are using, and the source of your data. For example, if the matrix will be used to decide among options for improving a process, the criteria you select should consider how the plan will be implemented and what resources will be required. Sometimes you need to consider several variables and your matrix will compare multiple sets of related items. Data for the matrix items may come from another tool you've used or you may have to collect and organize new data to generate sets of items.

- **Choose the matrix format**

The *Memory Jogger Plus+* and other sources describe several types of matrices and discuss uses for each. We will focus in this course on the L-shaped matrix, a simple two-dimensional tool for comparing two sets of items.

- **Enter items in the matrix**

Transfer your data from data collection forms, tools such as the tree diagram, or other sources. Take care in the transcription and check it for accuracy *before* you begin to compare the items and complete the matrix.

Relationship Symbols

 = STRONG 9

 = SOME 3

 = WEAK 1

—— = NONE 0

Module 1, Lesson 4, Viewgraph 12

- **Define relationship symbols**

You can use almost any symbol to indicate the relationship between items in a matrix as long as you provide a legend. The legend should clearly identify the meaning of each symbol and should be consistent among related matrices. The symbols most often used in quality improvement work originated in Japan. We use them to indicate:

Relationship strength	Level of responsibility
⊙ = Strong relationship	⊙ = Primary responsibility
○ = Some relationship	○ = Secondary responsibility
Δ = Weak/possible relationship	Δ = Should be kept informed/may need information from them
– = No relationship	– = No responsibility

☞ **INSTRUCTOR NOTE.** Ask the QUESTION: "Can primary responsibility be shared?" Facilitate the appropriate RESPONSE: Shared primary responsibility means no one is accountable. The secondary responsibility symbol provides for designation of team members.

- **Compare the sets of items**

Fill in the matrix horizontally, asking these questions for each set of items:

- ♦ Is there any relationship between these two items?
- ♦ If yes, what is the strength of that relationship?

Clarification and questioning are important, but avoid becoming enmeshed in the interpretation step. Remember, we're looking for a "gut" reaction. The symbols may be telling us something we find hard to accept. If progress gets stalled, leave it and return later to complete the interpretation.

NSTRUCTOR NOTE. Discuss the use of symbols and numerical values in the Matrix. Symbols are more visual, and many people find them easier to work with. Some points to make are:

⇒ It is common to associate numerical values with the various symbols for analysis and decision-making. Doing so allows users to associate symbols with values which may be helpful in prioritizing tasks.

⇒ Using only symbols during the comparison step allows patterns which might otherwise be obscured by the numbers to surface and be recognized.

⇒ The numerical difference between the strength of relationship symbols must be wide enough to differentiate the importance of the elements of the matrix. The values used here are widely accepted because they work well.

- **Complete the Matrix Diagram**

Convert the symbols to their number values and total the columns. The numerical values of the symbols are:

⊙ = 9
○ = 3
Δ = 1
– = 0

Steps to Align Customer Needs and Significant Processes

Legend

⦿	Strong relationship	= 9
○	Some relationship	= 3
△	Possible or weak	= 1
—	No relationship	= 0

Matrix Diagram

SIGNIFICANT PROCESSES
(from first level of tree diagram)

CUSTOMER NEEDS (From Affinity Header Cards)	Priority Rating	Provide Organic Air Support	Integrate P-3 Coverage	Task SSN in Support	Coordinate BG ASW CCC	Assign ASW Ship Screen Positions	Coordinate IUSS Support	Issue ASW Contact Reports
Timely ASW Contact Reports								
Knowledge of BG disposition								
Long Range ASW Reports								
Operational Deception Plan								
Attack Plan								
BG ASW Protection								
TOTAL								

Module 1, Lesson 4, Viewgraph 13

☞ **INSTRUCTOR NOTE.** For this example, the elements of the matrix consist of needs and processes associated with establishing an antisubmarine warfare screen around an aircraft carrier battle group to protect it from enemy submarines. This continues the example introduced in the Affinity Diagram lesson. The following series of viewgraphs will provide the steps needed to build a Matrix Diagram for process management.

Step 1. From the Affinity Diagram header cards, record the customers' needs vertically down the left column of the matrix.

Step 2. From the first level of the Tree Diagram, record significant processes horizontally across the top row of the matrix.

Steps to Align Customer Needs and Significant Processes

Legend

⊙	Strong relationship	= 9
○	Some relationship	= 3
△	Possible or weak	= 1
—	No relationship	= 0

Matrix Diagram

SIGNIFICANT PROCESSES
(from first level of tree diagram)

CUSTOMER NEEDS (From Affinity Header Cards)	Priority Rating	Provide Organic Air Support	Integrate P-3 Coverage	Task SSN in Support	Coordinate BG ASW CCC	Assign ASW Ship Screen Positions	Coordinate IUSS Support	Issue ASW Contact Reports
Timely ASW Contact Reports		○	⊙	△	⊙	○	⊙	⊙
Knowledge of BG disposition		○	△	⊙	⊙	○	—	△
Long Range ASW Reports		⊙	⊙	⊙	○	○	⊙	—
Operational Deception Plan		△	△	—	○	△	—	—
Attack Plan		○	○	○	⊙	○	—	—
BG ASW Protection		⊙	△	○	⊙	⊙	—	—
TOTAL								

Module 1, Lesson 4, Viewgraph 14

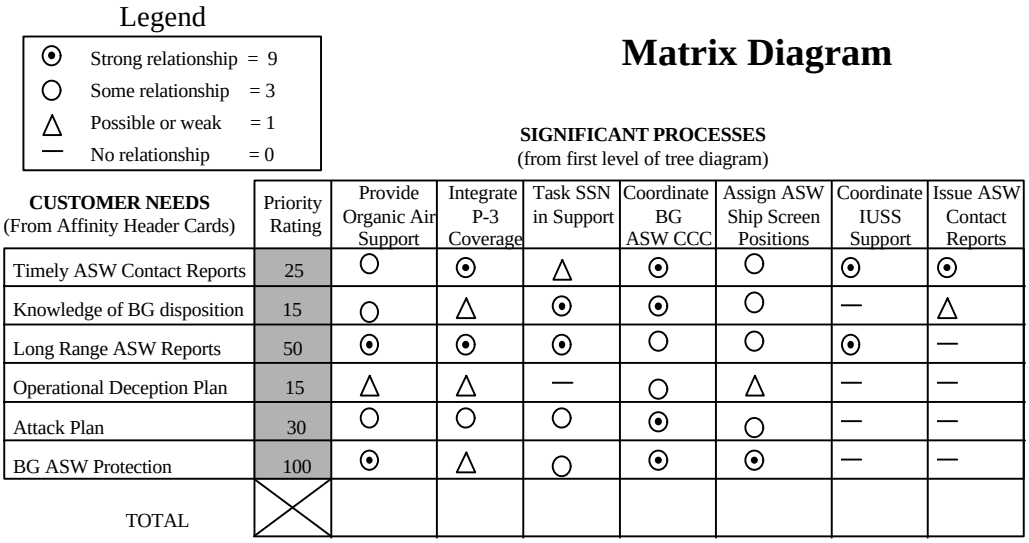
Step 3. Fill in the cells of the matrix by asking the question: "Is there any relationship between the significant process (use the exact words written in the column heading) and the customer need (use the exact words written in the first row)?" If the answer is "no," record a dash (-) in the cell. If the answer is "yes," ask "What is the strength of that relationship?" Assign a symbol based on the team's perception of the relationship (either strong, some, or weak).

For example: Is there a relationship between “Provide Organic Air Support” and “Timely ASW Contact Reports?” (Answer: “yes”) What is the strength of that relationship? (Answer: “some”)

Continue filling in each cell of the matrix by asking the same questions.

Step 4. Examine the matrix looking for patterns or gaps.

Steps to Align Customer Needs and Significant Processes



Module 1, Lesson 4, Viewgraph 15

Step 5. Enter the customer needs priority rating (from the Affinity Diagram header cards) in the priority rating column of the matrix. In this example, priority ratings range from 100 for “BG ASW Protection” to 15 for “Knowledge of BG disposition” and Operational Deception Plan.”

Steps to Align Customer Needs and Significant Processes

Legend

⊙	Strong relationship = 9
○	Some relationship = 3
△	Possible or weak = 1
—	No relationship = 0

Matrix Diagram

SIGNIFICANT PROCESSES
(from first level of tree diagram)

CUSTOMER NEEDS (From Affinity Header Cards)	Priority Rating	Provide Organic Air Support	Integrate P-3 Coverage	Task SSN in Support	Coordinate BG ASW CCC	Assign ASW Ship Screen Positions	Coordinate IUSS Support	Issue ASW Contact Reports
Timely ASW Contact Reports	25	○ 75	⊙ 225	△ 25	⊙ 225	○ 75	⊙ 225	⊙ 225
Knowledge of BG disposition	15	○ 45	△ 15	⊙ 135	⊙ 135	○ 45	— 0	△ 15
Long Range ASW Reports	50	⊙ 450	⊙ 450	⊙ 450	○ 150	○ 150	⊙ 450	— 0
Operational Deception Plan	15	△ 15	△ 15	— 0	○ 45	△ 15	— 0	— 0
Attack Plan	30	○ 90	○ 90	○ 90	⊙ 270	○ 90	— 0	— 0
BG ASW Protection	100	⊙ 900	△ 100	○ 300	⊙ 900	⊙ 900	— 0	— 0
TOTAL								

Module 1, Lesson 4, Viewgraph 16

Step 6. Starting with the first cell and working across the row, convert each symbol to its equivalent number.

Step 7. Factor in the customers' priority rating by multiplying the value in each cell in each row by the priority rating. Continue working across the rows until a total is entered in each cell. If the Matrix Diagram does not have space to record the values, use a blank matrix form.

Steps to Align Customer Needs and Significant Processes

Legend

⊙	Strong relationship = 9
○	Some relationship = 3
△	Possible or weak = 1
—	No relationship = 0

Matrix Diagram

SIGNIFICANT PROCESSES
(from first level of tree diagram)

CUSTOMER NEEDS (From Affinity Header Cards)	Priority Rating	Provide Organic Air Support	Integrate P-3 Coverage	Task SSN in Support	Coordinate BG ASW CCC	Assign ASW Ship Screen Positions	Coordinate IUSS Support	Issue ASW Contact Reports
Timely ASW Contact Reports	25	○ 75	⊙ 225	△ 25	⊙ 225	○ 75	⊙ 225	⊙ 225
Knowledge of BG disposition	15	○ 45	△ 15	⊙ 135	⊙ 135	○ 45	— 0	△ 15
Long Range ASW Reports	50	⊙ 450	⊙ 450	⊙ 450	○ 150	○ 150	⊙ 450	— 0
Operational Deception Plan	15	△ 15	△ 15	— 0	○ 45	△ 15	— 0	— 0
Attack Plan	30	○ 90	○ 90	○ 90	⊙ 270	○ 90	— 0	— 0
BG ASW Protection	100	⊙ 900	△ 100	○ 300	⊙ 900	⊙ 900	— 0	— 0
TOTAL		1575	895	1000	1725	1275	675	240

Module 1, Lesson 4, Viewgraph 17

Step 8. Add each column vertically to get a total score for each significant process.

Step 9. Select the highest priority significant process to continue to Step 5 of the Process Management Flowchart. (NOTE: Do not automatically select the highest priority option. Remember, the tool is used to help you make decisions, not make decisions for you.)

Step 10. Sanity check the matrix. The team should review the matrix to be sure it makes sense.

The matrix diagram helps an ESC identify and quantify the relationships between the command's significant processes and customers' needs so they can decide which significant process to work on first. The ESC will eventually charter QMBs to study all of the command's significant processes, but most organizations cannot work on everything all at once. In this example, "Coordinate BG ASW CCC" received the highest score and would be the first process selected for improvement (provided that the sanity check supports that decision).

The matrix results may not be what you or your team expected. A frequent initial reaction is to discount the process, to react by saying "Something is wrong; this can't be right." When this occurs, it is important that you take the time to really consider the

message the matrix is conveying. While it is vital that the team sanity check the outcome, consider the possibility of a paradox.

EXERCISE. Transition into using a Matrix Diagram for the Case Study.

⇒ Explain that the Matrix Diagram will be used to align significant processes with customer needs.

⇒ Distribute to the teams blank Matrix Diagram forms which have the Case Study headings filled in (CASE-11).

⇒ Have participant teams use the handout to develop a matrix to align customers' needs with significant processes.

✉ **CASE STUDY NOTE.** This is a good time to show a pattern by pointing out that Column 4 (Reports to Headquarters) has a dash in each row, indicating that the organization is using some (maybe even a lot) of its resources to provide reports to headquarters. Overall, customers have said they do not perceive these reports to be valuable to them. The command must investigate and determine whether it is important to continue providing these reports. It may be that the reports have added value in a way the customer is not aware of and, therefore, the command should continue to produce them. If, on the other hand, the reports do not add value, it may be possible, through discussions with headquarters, to discontinue or modify this process. Often processes that were needed when originally designed have lost their value over time. When these processes are identified in this manner, they can be evaluated and validated or eliminated. Highlight the Totals row and the Maintain Inventory and Fill Orders column, place the completed Case Study Matrix Diagram (CASE-12) on the Storyboard with the Tree Diagram, and label it Step 4.

Once the **ESC** has determined what significant process to concentrate on first, it will charter a **QMB** for the improvement of that process.

For the purpose of the case study, a QMB will be chartered for the significant process "Maintain Inventory and Fill Orders."

Video Presentation

The Abilene Paradox

Module 1, Lesson 4, Viewgraph 18

☞ **INSTRUCTOR NOTE.** Introduce the videotape, "The Abilene Paradox", which is 28 minutes long. When the videotape is over, ASK the participants to relate its message to this course. Facilitate appropriate ANSWERS such as:

⇒ The matrix uses subjective input and translates this input into quantifiable data upon which priority is based. If the team accepts the priority without surfacing and discussing their reservations or resistance, they might well be on the way to Abilene.

⇒ The tools should be used to analyze the information they generate, and not to make decisions.

⇒ Everyone can be in agreement but fail to communicate that agreement. They end up taking action that is contrary to what the group really wants. As a result, anger and frustration abound.

⇒ If the participants have seen the videotape, facilitate a brief discussion about objective data analysis and group decision-making and move on.

Product of Lesson 4

A prioritized list of significant processes

Module 1, Lesson 4, Viewgraph 19

LESSON SUMMARY. In this lesson we have learned how to produce a prioritized list of significant processes by first identifying the processes the organization performs in support of its mission, and then aligning them with the needs of external customers.

☞ **INSTRUCTOR NOTE.** The decision to select the second and/or third highest priority significant process for simultaneous improvement is dependent upon available resources and the priority of the need to improve particular processes. If the decision is made to select more that one process, the remaining steps in the Process Management Flowchart apply to each significant process independently.

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Methods for Managing Quality

READINGS

Methods for Managing Quality

CASE STUDY

Methods for Managing Quality

TQLO INFORMATION
GLOSSARY OF TERMS
PAR 4, ETC.

Methods for Managing Quality

Instructor Guide

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October 1997